

What is claimed is:

- 1 1. A wireless network system for use with two vehicles, said system comprising:
 - 2 a first relay device including first and second Bluetooth® modules, each of the first
 - 3 and second Bluetooth® modules capable of performing a cable communication irrespective
 - 4 of which is a master or slave; and
 - 5 at least one first wireless terminal including a third Bluetooth® module,
 - 6 wherein the first and third Bluetooth® modules structure a first piconet in which the first
 - 7 Bluetooth® module is a master, and the third Bluetooth® module is a slave,
 - 8 the second Bluetooth® module structures a second piconet;
 - 9 and wherein the first piconet and the second piconet structure a network.
- 1 2. The wireless network system according to claim 1, comprising:
 - 2 a second relay device including a fourth Bluetooth® module; and
 - 3 at least one second wireless terminal including a fifth Bluetooth® module,
 - 4 wherein the second, fourth, and fifth Bluetooth® modules structure a second piconet in
 - 5 which the fourth Bluetooth® module is a master, and the second and fifth Bluetooth®
 - 6 modules are slaves.

1 3. The wireless network system according to claim 1, comprising:
2 a second relay device including fourth and sixth Bluetooth® modules, each of the
3 fourth and sixth Bluetooth® modules capable of performing a cable communication
4 irrespective of which is a master or slave;
5 at least one second wireless terminal including a fifth Bluetooth® module;
6 the second and fourth Bluetooth® modules structure a third piconet in which the
7 fourth Bluetooth® module is a master, and the second Bluetooth® module is a slave;
8 wherein the fifth and sixth Bluetooth® modules structure a third piconet in which
9 the sixth Bluetooth® module is the master, and the fifth Bluetooth® module is the slave; and
10 wherein the first, second, and third piconets structure a network.

1 4. The wireless network system according to claim 1, wherein the first and third
2 Bluetooth® modules communicate with each other with transmission electricity conforming
3 to a class 2 or 3 of a Bluetooth® standard.

1 5. The wireless network system according to claim 2, wherein the second, fourth, and
2 fifth Bluetooth® modules communicate with one another with transmission electricity
3 conforming to a class 1 of a Bluetooth® standard.

1 6. The wireless network system according to claim 5, wherein the fifth Bluetooth®
2 module includes means for restricting transmission electricity.

1 7. The wireless network system according to claim 3, wherein the second and fourth
2 Bluetooth® modules communicate with each other with transmission electricity conforming
3 to a class 1 of a Bluetooth® standard.

1 8. The wireless network system according to claim 3, wherein the fifth and sixth
2 Bluetooth® modules communicate with each other with transmission electricity conforming
3 to a class 2 or 3 of a Bluetooth® standard.

1 9. The wireless network system according to claim 1, wherein an SCO link or an
2 ACL link is established between the Bluetooth® modules.

1 10. The wireless network system according to claim 1 or 2, wherein, in the first
2 relay device, the first and second Bluetooth® modules are controlled by common control
3 means.

1 11. The wireless network system according to claim 10, wherein the first and second
2 Bluetooth® modules and the control means are connected together via a bus.

1 12. The wireless network system according to claim 3, wherein, in the second relay
2 device, the fourth and sixth Bluetooth® modules are controlled by common control means.

1 13. The wireless network system according to claim 12, wherein the fourth and sixth
2 Bluetooth® modules and the control means are connected together via a bus.

1 14. A wireless communications method in a wireless network system constructed by a
2 plurality of Bluetooth® terminals, wherein
3 the system comprises:
4 a first relay device including first and second Bluetooth® modules, each of the
5 Bluetooth® modules performs a cable communication irrespective of which is a
6 master/slave; and
7 at least one first wireless terminal including a third Bluetooth® module, and
8 in the method,

9 the first and third Bluetooth® modules communicate with each other on a first
10 piconet in which the first Bluetooth® module is a master, and the third Bluetooth® module is
11 a slave,
12 the second Bluetooth® module communicates with any one of the other Bluetooth®
13 modules on a second piconet, and
14 the first Piconet and the other piconet structure a network.

1 15. The wireless communications method in a wireless network system according to
2 claim 14, wherein
3 the system comprises:
4 a second relay device including a fourth Bluetooth® module; and
5 at least one second wireless terminal including a fifth Bluetooth® module, and
6 in the method,
7 the second, fourth, and fifth Bluetooth® modules communicate with one another on
8 a second piconet in which the fourth Bluetooth® module is a master, and the second and
9 fifth Bluetooth® modules are a slaves, and
10 the first and second piconets structure a network.

1 16. The wireless communications method in a wireless network system according to
2 claim 14, wherein
3 the system comprises:
4 a second relay device including fourth and sixth Bluetooth® modules, and each of
5 the Bluetooth® modules performs a cable communication irrespective of which is a
6 master/slave; and
7 at least one second wireless terminal including a fifth Bluetooth® module, and
8 in the method,
9 the second and fourth Bluetooth® modules communicate with one another on a
10 third Piconet in which the fourth Bluetooth® module is a master, and the second Bluetooth®
11 module is a slave,
12 the fifth and sixth Bluetooth® modules communicate with each other on a third
13 piconet in which the sixth Bluetooth® module is the master, and the fifth Bluetooth® module
14 is the slave, and
15 the first, second, and third piconets structure a network.

1 17. The wireless communications method in a wireless network system according to
2 claim 14, wherein the first and third Bluetooth® modules communicate with each other with

3 transmission electricity conforming to a class 2 or 3 of a Bluetooth® standard.

1 18. The wireless communications method in a wireless network system according to
2 claim 15, wherein the second, fourth, and fifth Bluetooth® modules communicate with one
3 another with transmission electricity conforming to a class 1 of a Bluetooth® standard.

1 19. The wireless communications method in a wireless network system according to
2 claim 18, wherein the fifth Bluetooth® module restricts transmission electricity.

1 20. The wireless communications method in a wireless network system according to
2 claim 16, wherein the second and fourth Bluetooth® modules communicate with each other
3 with transmission electricity conforming to a class 1 of a Bluetooth® standard.

1 21. The wireless communications method in a wireless network system according to
2 claim 16, wherein the fifth and sixth Bluetooth® modules communicate with each other
3 with transmission electricity conforming to a class 2 or 3 of a Bluetooth® standard.

1 22. The wireless communications method in a wireless network system according to

2 claim 14, wherein an SCO link or an ACL link is established between the Bluetooth®
3 modules.

1 23. The wireless communications method in a wireless network system according to
2 claim 14 or 15, wherein, in the first relay device, the first and second Bluetooth® modules
3 are controlled by common control means.

1 24. The wireless communications method in a wireless network system according to
2 claim 23, wherein the first and second Bluetooth® modules and the control means are
3 connected together via a bus.

1 25. The wireless communications method in a wireless network system according to
2 claim 16, wherein, in the second relay device, the fourth and sixth Bluetooth® modules are
3 controlled by common control means.

1 26. The wireless communications method in a wireless network system according to
2 claim 25, wherein the fourth and sixth Bluetooth® modules and the control means are
3 connected together via a bus.